

Application No. 10/560,525  
Amendment dated March 21, 2011  
Reply to Office Action of September 21, 2010

AMENDMENTS TO THE CLAIMS:

1-29. (Canceled)

30. (Withdrawn) The method according to claim 27, wherein the at least one metal area is produced using the Mo-Mn process, a W process, an LTCC process, or a combination thereof.

31. (Previously presented) The method according to claim 51, wherein the heating of the ceramic layer during the thermal treatment process is effected by means of an energy beam or a laser beam.

32. (Previously presented) The method according to claim 31, wherein the laser beam is focused in order to form an oval focus, with its greater cross-section axis oriented in the processing direction.

33. (Withdrawn) The method according to claim 27, wherein the ceramic layer is thermally separated or split along the respective separating line by means of the thermal treatment or process step.

Application No. 10/560,525

Amendment dated March 21, 2011

Reply to Office Action of September 21, 2010

34. (Currently amended) The method according to claim 51, wherein ~~[[a]]~~ the break-off line is produced in the ceramic layer by means of the thermal treatment process, enabling subsequent controlled mechanical breaking of the ceramic layer.

35. (Withdrawn) The method according to claim 27, wherein the heating of the ceramic layer is effected by means of a hot gas beam, a flame, a plasma, or microwave energy.

36. (Previously presented) The method according to claim 51, wherein the cooling of the ceramic layer is effected progressively at a pre-defined spatial and/or temporal distance from the heating.

37. (Previously presented) The method according to claim 36, wherein the cooling of the ceramic layer is effected with the coolant progressively and point by point.

38. (Previously presented) The method according to claim 37, wherein the coolant is applied to the ceramic layer in the form of at least one coolant stream.

39. (Previously presented) The method according to claim 37, wherein the coolant is a liquid medium, water, a gaseous or vaporous medium, an aerosol, or a mixture of these.

Application No. 10/560,525

Amendment dated March 21, 2011

Reply to Office Action of September 21, 2010

40. (Withdrawn) The method according to claim 27, wherein the ceramic layer is held in a clamping fixture during the thermal treatment or process step, by means of a vacuum.

41. (Currently amended) The method according to claim 51, wherein the ceramic layer or the metal-ceramic substrate is formed by the ceramic ~~said~~ layer is located on a self-adhesive foil or separation into single substrates.

42. (Previously presented) The method according to claim 51, wherein the thermal treatment is effected along a groove produced on at least one surface side of the ceramic layer.

43. (Currently amended) The method according to claim 51 ~~[[50]]~~, wherein at least one metal area is applied to both surface sides of the ceramic layer.

44. (Currently amended) The method according to claim 51 ~~[[50]]~~, wherein the ceramic layer is part of a multiple substrate, that a plurality of metal areas, each allocated to one single substrate, are provided on at least one surface side of the ceramic layer, and that the separating ~~or~~ break-off lines are produced between the single substrates through the thermal treatment process.

Application No. 10/560,525

Amendment dated March 21, 2011

Reply to Office Action of September 21, 2010

45. (Previously presented) The method according to claim 51, wherein the ceramic layer is selected from the multiple group,  $\text{Al}_2\text{O}_3$ ,  $\text{AlN}$ ,  $\text{Si}_3\text{N}_4$ ,  $\text{SiC}$ ,  $\text{BeO}$ ,  $\text{TiO}_2$ ,  $\text{ZrO}_2$ , or  $\text{Al}_2\text{O}_3$  with  $\text{ZrO}_2$  content.

46-48. (Canceled)

49. (Withdrawn) The method according to one claim 27, wherein the metal areas are manufactured at least partially from a metal layer or foil, a copper layer or foil, using a direct bonding process or an active soldering process.

50. (Canceled)

51. (Currently amended) A method for manufacturing a metal-ceramic substrate, the said method comprising the steps of:

- a. applying a metallization to at least one surface side of a ceramic layer by means of a direct copper bonding process,
- b. structuring the metallization into a plurality of individual metal areas such, that the metal areas on the at least one surface side of the ceramic layer are at a distance from another,

Application No. 10/560,525

Amendment dated March 21, 2011

Reply to Office Action of September 21, 2010

c. progressively heating only the ceramic layer in a thermal treatment process in the areas in between all the metal areas and progressively shock-cooling the ceramic layer to produce break-off ~~separating or break-off~~ lines in between all metal areas by controlled fracture or weakening the material in the ceramic layer,

wherein the heating of the ceramic layer during the thermal treatment process takes place without vaporization or burning off the ceramic material in a treatment area that moves in relation to the ceramic layer, wherein the ceramic layer has a thickness between 0.1 and 3 mm, and wherein the metal areas have a thickness between 0.02 and 0.6 mm and are at a distance of 0.1 – 3 mm from each other and wherein the metal areas are at a distance of 0.05-1.5mm from a respective break-off ~~break~~-line in between the metal areas.